

What is claimed is:

1. An apparatus for etching a semiconductor device using a neutral beam, the apparatus comprising:
 - an ion source for extracting and accelerating an ion beam having a predetermined polarity;
 - a reflector positioned in a path of the ion beam accelerated from the ion source for reflecting and neutralizing the ion beam; and
 - a stage for positioning a substrate to be etched in a path of the neutral beam.
2. The apparatus of claim 1, wherein the ion source is an inductively coupled plasma source.
3. The apparatus of claim 1, wherein the reflector comprises a plurality of plates which are spaced apart from each other to reflect the ion beam.
4. The apparatus of claim 1, wherein the reflector comprises a plate which is tiltable to adjust an angle of incidence of an incident ion beam to a horizontal surface of the plate.
5. The apparatus of claim 1, wherein the reflector comprises a plurality of cylindrical reflecting members.
6. The apparatus of claim 1, further comprising a position control means for adjusting a position of the stage corresponding to the path of the neutral beams reflected by the reflector.
7. The apparatus of claim 1, wherein the reflector is selected from the group consisting of a semiconductor substrate, a silicon dioxide substrate, and a metal substrate.
8. The apparatus of claim 1, further comprising an ion beam blocker having a

slit passing only ions within a predetermined range between the ion source and the reflector.

9. The apparatus of claim 7, further comprising a retarding grid between the reflector and the stage.

10. The apparatus of claim 1, wherein the ion source comprises a grid at a rear of the ion source.

11. The apparatus of claim 5, wherein the cylindrical reflecting members are overlapped, and adjacent reflectors have different polarities.